Classwork 89 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Minimum Area within an Area Period\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **CRS** | Geometry Content |
| **Objective** | 14.4 Given a surface area, determine minimal unit areas that fit within that space |

Review of Cubes

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| 1. The area of the face of a cube is 81 square inches. What is the volume of that cube? | 1. The volume of the cube is 1,000 square centimeters. What is the area of one face of the cube? |

Unit Conversions

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| **Distance Conversions** | |
| \_\_\_\_\_\_\_\_\_\_ inches = \_\_\_\_\_\_\_\_\_\_ foot  \_\_\_\_\_\_\_\_\_\_ centimeters = \_\_\_\_\_\_\_\_\_\_ meter  \_\_\_\_\_\_\_\_\_\_ feet = \_\_\_\_\_\_\_\_\_\_ yard | |
| Example 1:  The length of a soccer field is 90 meters. What is the length in centimeters? | YOU TRY!  1. The distance between two buildings on the street is 180 feet. What is the distance in yards? |
| **Area Conversions** | |
| \_\_\_\_\_\_\_\_\_\_ inches2 = \_\_\_\_\_\_\_\_\_\_ foot2  \_\_\_\_\_\_\_\_\_\_ centimeters2 = \_\_\_\_\_\_\_\_\_\_ meter2  \_\_\_\_\_\_\_\_\_\_ feet2 = \_\_\_\_\_\_\_\_\_\_ yard2 | |
| Example 2:  The area of a table top is 720 inchessquared. What is the area in feet? | YOU TRY!  4. The dimensions of a room are 10 feet by 9 feet. What is the area of the room in inches? |

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| Example 3: Michael is going to cover his hallway with carpet. The carpet will come in strips that measure 16 inches by 18 inches. Michael plans to staple the strips of carpet down so there is no space in between them. If Michael’s hallway is 10 feet by 6 feet, what is the minimum number of strips that he will need to fully cover his hallway?  Step 1: Find MAX surface area of the strips  Step 2: Find area of hallway  Step 3: Check/convert units if needed  Step 4: Find # of strips | Example 4: A property owner wants to build a floor in the backyard that will be 6 feet by 10 feet. He has bricks that are 4 inches wide, 2 inches tall, and 8 inches long. How many bricks will he need to lay in order to build this floor?  Step 1: Find MAX surface area of the bricks  Step 2: Find area of the backyard  Step 3: Check/convert units if needed  Step 4: Find # of bricks |
| Example 5: Jonathan is going to cover his basement with linoleum strips that measure 1 foot by 3 feet. He plans to lay the strips next to each other so there is no space in between them. If Jonathan’s basement is 6 yards by 5 yards, what is the minimum number of linoleum strips that he will need to fully cover his basement?  Step 1: Find MAX surface area of the strips  Step 2: Find area of hallway  Step 3: Check/convert units if needed  Step 4: Find # of strips | |

Independent Practice

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| 1) Jessica is going to cover her patio with bricks and she plans to put the bricks next to each other so there is no space in between them. The bricks are rectangular prisms that measure 1 inch tall by 4 inches wide by 5 inches long. If Jessica’s patio is a rectangle that measures 6 feet by 5 feet, what is the minimum number of bricks that she will need to fully cover her porch?  Step 1: Find MAX surface area of the bricks  Step 2: Find area of the backyard  Step 3: Check/convert units if needed  Step 4: Find # of bricks | 2) Dee is going to cover her front porch with bricks and she plans to put the bricks next to each other so there is no space in between them. The bricks are rectangular prisms that measure 2 inches long by 6 inches wide by 8 inches tall. If Dee’s porch is a rectangle that measures 12 feet by 4 feet, what is the minimum number of bricks that she will need to fully cover her porch?  Step 1: Find MAX surface area of the bricks  Step 2: Find area of the backyard  Step 3: Check/convert units if needed  Step 4: Find # of bricks |
| 3) A teacher wants to cover his bulletin board with student work. The board is 6 feet wide and 4 feet tall. Without overlapping, how many student papers can he staple onto the board if they are each 8.5 x 11 inches? | 4) Jessica is going to cover her patio with bricks and she plans to put the bricks next to each other so there is no space in between them. The bricks are rectangular prisms that measure 2 inch tall by 3 inches wide by 5 inches long. If Jessica’s patio is a rectangle that measures 6 feet by 10 feet, what is the minimum number of bricks that she will need to fully cover her porch? |